

ERROR MANAGEMENT

Should patients have a role in patient safety? A safety engineering view

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In recent years, there has been increased interest in involving the public to enhance the quality of care and improve the “patient experience” with a view to increasing their trust in the health system.^{1–3} Beyond giving their feedback on in-hospital experiences, several articles and reviews have considered how patients could play an active participant role in the safety of their own care processes.^{3–7} Examples of this role include researchers asking patients to verify with staff that they have washed their hands, or patients complying with instructions to mark the “non-surgical site” before surgery.^{6–8}

However, based on experience of safety in other industries, it could be argued that relying on this type of patient participation should not be a solution worthy of long-term investment at the governmental level, but should rather be an unexpected source of help in its sporadic occurrence.

Although this issue has been discussed previously in health policy literature,^{9–10} there has as yet been no application of the knowledge of safety engineering from high-reliability industries to this issue.

For predominantly human-based systems in such industries, the field of “human factors” uses human reliability analysis (HRA) techniques such as HEART or THERP to define the attributes of a task, system or environment that would make it vulnerable to human error.

The HEART technique¹¹ lists error-producing conditions (EPCs) such as the “familiarity of the task and the user’s experience with it”, “levels of supervision” and the “complexity of the task”.

The THERP technique¹² identifies performance-shaping factors (PSFs) such as quality of the physical environment (noise, temperature and cleanliness); any presence of written procedures, team structure and communication. THERP also uses a large selection of “stressor PSFs” which may be psychological (presence of distractions) or physiological (fatigue, pain, discomfort, suffering from hunger or thirst, movement constriction and lack of physical exercise), and “internal PSFs” such as “characteristics of people resulting from internal and external influences”, including previous training/experience, personality, intelligence, motivation and emotional state.

Some of these factors have already been recognised as having an impact on clinicians’ ability to work. Arnstein^{13–14} has cited use of the aviation “IMSAFE” strategy (Illness? Medication? Stress? Alcohol? Fatigue? Eating?) to act as an

ongoing “cross-check” of the clinical team’s capability to make risky decisions.

Given that workers in industry and healthcare are at increased risk of error when under the mediating influence of PSFs or EPCs, it is surely reasonable to assume that patients are “equally human” and can be similarly affected.

Using PSFs and EPCs, the pros and cons of engaging patients to take responsibility for their own care can be considered.

THE PROS

Patients can provide three key contributions to the quality of their own care:

- (1) Their knowledge of the historical background: It is probable that patients will know more about the progression of their symptoms and their experience of treatment than the collective clinicians who treat them.
- (2) Their self-interest and motivation for a good outcome: When comparing this with other interactions between service provider and recipient (for example, product designer/product user, pilot/passengers), it would be rare for the staff interests in the outcome to equal or exceed those of the patient.
- (3) Their availability and proximity: One guaranteed contribution patients can provide to the quality of their own care is the fact that they will always be “physically present to spend time with themselves”. If a sign or symptom changes, the patient will be the first link in the chain to experience and have the opportunity to communicate this change. Although some conditions can hinder the communication process (eg, the unconscious state), this factor could be used to support some self-help solutions (eg, self-administration of drugs over long periods, as would be necessary for chronic conditions), which may allow care providers to delegate some tasks.

THE CONS

The patient population includes all ages, cultures and backgrounds, with different personalities, levels of intelligence, communicating through a variety of languages and requiring the services of healthcare professionals for a vast diversity of reasons. Using the EPCs and PSFs described above,

Abbreviations: ATCO, air traffic controller; EPC, error-producing condition; HRA, human reliability analysis; PSF, performance-shaping factor

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a strategy that allocates such a diversity of patients a pre-defined role in the safety of their own care surely cannot also guarantee an equal quality of care for all.

Although it could be seen as an enormous asset if patients were clinically skilled and confident enough to define, clarify and update their own care pathway and provide the staff with timely suggestions and reminders as to their proposed actions, this does not seem to be an option that could work reliably for the majority of the patient population.

There are fields that imply immediate abandonment of the concept: paediatrics—based on patients' maturity to be given responsibility; psychiatric care—based on the state of their thoughts, emotions and their intended actions; and many of the other clinical fields based on the physical state of the patient while in their care—for example, anaesthesia, intensive care and the emergency department.

Additionally, in a study examining patients' recall of clinical information following laparoscopy for acute abdominal pain,¹⁵ it was discovered that, despite the fact that 20% of the sample responded incorrectly to questions on whether anything had been removed during the procedure, 91.4% were satisfied with the information received during their stay in hospital. This suggests that patients may not even be a reliable source of information about their own clinical history.

Some of the PSFs that are believed to increase the probability of error when HRA is applied in industry and healthcare include fatigue, stress, and pain or discomfort. If it is reasonable to assume that patients are experiencing at least one of these factors, surely it is unreasonable to burden them with additional unfamiliar tasks and the anxiety associated with potential consequences of failure when an industrial safety analysis technique would consider them at too high risk to be trusted with any critical decisions. If the healthcare system acknowledges that patients should not work or drive in their condition due to such PSFs, why are they burdened with tasks that may impact on their own well-being?

WHAT ABOUT FAMILY MEMBERS?

This responsibility could be delegated to those who share an interest in the patient's well-being—family members, carers or other independent patient advocates. In this case, they would not be hampered by any PSFs arising from the patient's physical symptoms, but may have related psychological PSFs. As with the patient population, we cannot assume a family member to have skills or personalities to positively contribute to the care process. In extreme cases, it is important to remember that family members may not always have the patient's best interests in mind, and therefore, if they are given responsibility for care, it may still require monitoring by a healthcare professional. In terms of the aforementioned pros, they may be unaware of the patient's medical history and, in a hospital setting, they often cannot always be in close proximity to the patient. Therefore, moving the responsibility of "verifying that staff have washed their hands" from the patient to a visitor would result in this responsibility being maintained only during the periods when the individual is present—thus numerically decreasing the reliability of the check by the fraction of time absent.

COLLATING THE PROS AND CONS

In the HRA techniques HEART and THERP, the vulnerability to error would be assessed using expert judgement of the impact of the PSFs or EPCs present. Hence, in determining whether patients should be engaged in guaranteeing the quality of their own care, the specific skills, personality and circumstances for each patient would be taken into account on a patient-by-patient basis.

But how is this different from normal clinical practice? If the patient happens to be an emergency medicine consultant with a laceration to his or her leg, he or she is probably in a good position to advise staff of an optimal care plan. However, relying on a patient with dementia to provide a history that would result in optimal care for his or her condition may appear contrary to sense. Because you cannot select your patients or train all of them to be a reliable part of the quality scheme, any strategy that invests in this to ensure safer care would be vulnerable to extremely high risks.

HOW WOULD THIS BE VIEWED IN INDUSTRY?

There are associated risks with implementing a strategy where the public is responsible for the safety of its own care.

Firstly, if this was viewed as a trustworthy mechanism, there is a risk that clinicians would be "lulled into a false sense of security", with the risk that other safeguards may be relaxed—for example, if the patient was trusted to be part of a double check, there is a risk that, when under pressure, clinicians would no longer perceive the need to always check with each other. Such assumptions led to the death of an 18-year-old patient with leukaemia at Queen's Medical Centre, Nottingham, UK, when both SHO and Registrar assumed that each other knew and were following the correct procedures for administering intrathecal injections.¹⁶ In each case, the burden of responsibility falls onto the more senior, experienced person, which in our case is the trained healthcare professional. If the expectation placed on healthcare professionals is not to lower such barriers, then there is the implicit interpretation that the patient's role is not a reliable one.

Secondly, if such a measure was implemented, who is taking the ultimate responsibility for guaranteeing quality care? A situation similar to this has been highlighted in aviation. One concept that has been discussed is the idea of delegating the task of separation between airborne aircraft from the air traffic controller (ATCO) to the pilot. The main debate then arises—if separation is delegated to the pilot, who is responsible or in legal terms "liable", if there is an incident? If it is the ATCO, then their workload has not been decreased by this change as they still have to monitor the aircraft; yet, until this point, the pilot has never been responsible for maintaining separation—the skills and experience for separation lie with the ATCO. In aviation, so far it has been the ATCO's role to retain responsibility.¹⁷ Similarly, in healthcare, if the patient is increasingly responsible for his or her own safety, who is liable if the care is found to be negligent? Common sense indicates that it should still be the healthcare providers. If it is the clinician's expectation to be reminded by the patient, and critical information is not transmitted and/or tasks are not done, who is responsible? If the responsibility is still that of the clinicians, surely it is pointless to expend any effort in supplying an additional alleged safety barrier with such a low level of reliability.

Thirdly, the current system is under such pressure with staff experiencing high workload that there is a risk that healthcare professionals could misuse the concept and deliberately and inappropriately burden patients with responsibilities for care beyond their abilities and intentions. If a system of care has such associated weaknesses, it is unlikely to contribute to building patient trust and confidence in the system. If patients ask clinicians whether they have washed their hands and find they have not, surely this would lead more to a lack of trust in the clinician's professionalism as opposed to increased empowerment of the patient.

Fourthly, there may be circumstances where they are not comfortable with allowing the patient or family members to have responsibility for the patient's own safety even though

Summary points

- Industrial safety techniques indicate that the probability of error can be impacted by performance-shaping factors and error-promoting conditions, such as unfamiliarity with tasks, ill-health and stress.
- Although these reliability engineering concepts are being applied in healthcare to the decisions of clinicians, they have not yet been applied to the concept of the “patients’ role in the safety and quality of their own care”.
- Even though the patient could potentially provide an extra barrier, problems are introduced by trying to account for the diversity of the patient/carer population, the many clinical areas where this concept would fail, and the means by which this concept could result in patient harm and a loss of confidence in the healthcare system.
- Safety engineering would suggest that more reliable and cost-effective solutions for patient safety could be implemented through technological advances in fail-safe systems, and the education and policy to support this as opposed to burdening the patient with additional responsibilities when under care.

they demand this as their right. In this case, the clinician would be forced into the difficult situation of explaining why these particular circumstances or this particular individual does not support this role—effectively requiring the clinician to spend time and take the responsibility to assess “selection criteria” and resolve any conflicts that may arise as a result. In an emergency situation where such distractions are unwelcome, family members may not realise the seriousness of the situation and may not appreciate that their “empowered role” to ask questions may cause more harm than good.

THE SOLUTION

The systems approach would advocate the concept of “redundant safe systems” to ensure safety through multiple safeguards so that, if one part of the system fails, the system would “fail safe” through other mechanisms. For example, as a technological solution, the Department of Health’s *Design for patient safety* document¹⁸ recommends failsafe or back-up safety systems such as the pressure release valves on anaesthesia machines that reduce pressure and therefore protect the patients’ lungs.

However, the healthcare system is predominantly a human–human system, and attempting the development of “redundant systems” that include human-based solutions such as “double-checking” provides only unreliable error-prone safeguards. For this reason, the human-based back-up system should be supported with objective scientific measures, backed by other objective scientific measures, for reliability. In the hospital setting, this implies that the patient’s condition and status would be assessed continuously using physiological measures where possible, with the reliability of critical decisions being

improved by means of a network of expert opinions, supported through technological advances. These have to be backed up by an effective educational system to ensure consistency in skills to maximise the quality of information captured from the patient. This system must be overseen by a supportive management system that continuously identifies and addresses any and all system weaknesses and failures that arise.

Therefore, in safety engineering terms, it seems that patients are unlikely to provide a consistent and reliable contribution to the safety of the process of their own care. In a domain with a safety problem that is moving towards advocating the “systems approach”, it seems nonsensical to also advocate a solution with apparently decreased reliability. Consistent with the goals of patient involvement, efforts to develop a system with increased reliability and transparency would surely foster greater trust and confidence in healthcare professionals than burdening patients with responsibilities above and beyond their own intentions.

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